Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

CONSTRUCTION/OPERATING TITLE V/SYNTHETIC MINOR DRAFT PERMIT NO. V-03-008 R2
Trus Joist, A Weyerhaeuser Business
610 Trus Joist Lane
Chavies, Kentucky 41727
JULY 20, 2004
RALPH E. GOSNEY, REVIEWER
PLANT I.D. # 021-193-00097
APPLICATION LOG # 56351

MAJOR PERMIT REVISION (REVISION 2):

An application for a major revision to Permit V-03-008 R1 was received on February 20, 2004. The revision includes the replacement of (4) strand dryers with (2) new proposed strand dryers. Process modifications will also be made to make maximum use of the energy input to the system by recovering heat in the thermal oil heater exhaust gases by routing it through the (2) new proposed strand dryers.

The existing facility is a major source (greater than 100 tons of potential emissions) of carbon monoxide (CO), particulate matter (PM), nitrogen oxides (NO_x), and volatile organic compounds (VOC). After the proposed modifications, the facility will also be a major source (greater than 25 ton of total potential emissions) of hazardous air pollutants (HAPs). The facility will be subject to the US EPA proposed national emission standards for hazardous air pollutants (NESHAP) for Plywood and Composite Wood Products (40 CFR 63 Subpart DDDD). The facility will also become subject to the US EPA NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters (40 CFR Subpart DDDDD).

MINOR PERMIT REVISION (REVISION 1):

Permit V-03-008 was revised on October 3, 2003, and became Permit V-03-008 R1. The revision was a minor revision for the compliance method for the particulate emission limitation for Emissions Unit 01 – Three Wellons Wood-Fired Furnaces. The compliance, testing, record keeping and reporting methods on pages 2 - 5 was modified to include the revised language for performance testing and compliance. Electronic filter bed (EFB) performance was based on the amperage reading from the EFB.

SOURCE DESCRIPTION:

The Title V operating permit, V-03-008, was issued on July 2, 2003. Prior to the Title V operating permit, the facility operated under permit numbers C-93-111 revision 2, S-96-256, S-97-033, and the most recent VS-02-008. The plant consumes more than 200,000 cords of "low grade" timber annually; in the manufacture of Laminated Strand Lumber (LSL), Timber Strand and Trus Joist wood I-joist. The LSL process includes whole logs (debarked), cut in length, and processed into thin, long strands. The strands are then dried, coated with polyurethane MDI resin, and formed into a rough billet. Lastly, the billet is pressed into a billet approximately 8-feet wide by 48-long and several inches thick using steam injection technology. The general processing runs through the log and strand preparation, heating/energy, blending-forming-press, and finishing areas, which is tied to

the Trus Joist production department.

The following is a list of significant emission units.

E. Unit 01 Three Wellons Wood-Fired Oil Heaters
E. Unit 02 Two Strand Dryers
E. Unit 03 Siempelkamp Steam Injection Press
E. Unit 05 Saw System #1
E. Unit 06 Finish Saw System #2
E. Unit 07 Steineman Billet Sander
E. Unit 08 Two Stranding Operations
E. Unit 09 Stranding Area Woodhog
E. Unit 10 Siempelkamp Forming
E. Unit 11 Wood Dust Pneumatic Conveying
E. Unit 15 Green Woodhog
E. Unit 16 Log Preparation
E. Unit 17 Green Fuel Storage Bins
E. Unit 18 Dry Fuel Storage Bin
E. Unit 19 Wood Chipper
E. Unit 20 Wood Tub Grinder
E. Unit 21 Flange Preparation and Finger Joint Line
E. Unit 22 Web Preparation, TSI Machining, Spray Booth, I-line Oven, and (MP02) Fungicide Usage
E. Unit 23 High Pressure Relay
E. Unit 24 Propane Heating
E. Unit 25 Unpaved Roadway

Emission Units 26 – 28 Emission units or activities that have a potential to emit less than or equal to one-half (1/2) tons per year of combined hazardous air pollutants; or less than or equal to five (5) tons per year of a non-hazardous regulated air pollutant.

COMMENTS:

E. Unit 01 Three Wellons Wood-Fired Oil Heaters

The heat is provided by three (3) 80 mmBtu/hr wood-fired oil heaters, each containing two firing cells. The units are used as indirect heat exchangers to heat oil (defined as "boiler" in 40 CFR 60 Subpart Dc), and used as direct heat exchangers for the (2) new strand dryers. The propane auxiliary burner shall not be operated simultaneously with the Wellons wood-fired furnace. The potential rated capacity of the emission unit is limited to 240 mmBtu/hr. The units are also defined as "process heaters" (because they indirectly heat the oil) in 40 CFR 63 Subpart DDDDD (NESHAP for Industrial/Commercial/Institutional Boilers and Process Heaters). Although the wood-fired oil heaters are not defined as "process heaters" for directly supplying heat to the (2) new proposed strand dryers, the units will always be defined as process heaters because they indirectly heat the oil. Wood and bark wastes are combusted in the oil heater units.

Particulate matter (PM) emissions from the unit are controlled by multicyclones and an electronic filter bed (EFB). As part of the proposed revisions, a fraction (100% under normal conditions) of the hot gases from the oil heater will go to the (2) new strand dryers before the PM controls. The pre-control exhaust gases from the (3) oil heaters will be blended with the gases from the (2) new strand dryer burners for direct contact with the green wood strands in the (2) new strand dryers before passing through the PM controls.

The (3) Wellons wood-fired oil heaters were installed in 1994. Under all the operating conditions, heat from burning the wood will be supplied indirectly to the heating oil, and the wood-fired oil heaters will be subject to 40 CFR 63 Subpart DDDDD. The heating oil is used for supplying heat to the building, and for the press operation. The process or rate of heating the oil for the different plant processes will not be changed because of the proposed modifications to the facility. Therefore, the wood-fired oil heaters are considered "process heaters" for heating the oil for the building heat and press process, and considered "existing large solid fuel" units per 40 CFR 63 Subpart DDDDD definitions.

Based on the information provided, 401 KAR 59:015 and 60:005 incorporating by reference 40 CFR 60 Subpart Dc apply to the boilers because they were constructed after 1972.

The facility developed HAP emission factors from test data at similar process units in Trus Joist and Weyerhaeuser facilities and data reported in the literature for the combined emissions from the proposed (2) new strand dryers and the existing (3) oil heaters. To estimate HAP emissions from the existing (3) oil heaters without emissions passing through the proposed dryers, emissions for non-metals and 40 CFR 63 Subpart DDDD HAPs were calculated based on AP-42 Table 1.6-3. The conversion from the regulatory units of mmBtu to the Standard Classification Code (SCC) units of tons of wood/bark, a conversion factor of 12.638 mmBtu/ton of wood/bark was used, based on AP-42 and site information.

Testing of the units shall be under conditions when the (3) Wellons wood-fired oil heaters bypass the (2) proposed strand dryers. Although the exhaust from the (3) Wellons wood-fired oil heaters normally go to the (2) proposed strand dryers, two NESHAP Maximum Achievable Control Technology (MACT) standards cannot be applied to the same unit. Testing of the exhaust from the (2) proposed strand dryers under normal conditions is addressed under Emission Unit 02.

E. Unit 02 Two Strand Dryers

The (4) existing strand dryers will be replaced with (2) new proposed strand dryers. The productivity of drying strands will be increased. Heat in the thermal oil heater exhaust gases will be recovered by routing it through the (2) new proposed strand dryers. The oil heater exhaust gases will be blended with the emissions from (2) new proposed suspension wood burners. The exhaust gases will be controlled by multicyclones and an EFB control system to remove particulate from the gas stream.

40 CFR 63 Subpart DDDD, NESHAPS: Plywood and Composite Wood Products will be applicable to the (2) new proposed strand dryers. The proposed rule is signed, but has not been published in the Federal Register, as of May 20, 2004. The permittee may evaluate if the affected source can be de-listed from the 40 CFR Subpart DDDD applicability through the risk-based option expected in the final rule. The permit has been written assuming the permittee may follow the production-based compliance option in 40 CFR Subpart DDDD. Although there is an EFB for control of particulates, it is not a control for the six HAPs regulated under 40 CFR Subpart DDDD. Although the proposed strand dryers are rotary dryers by design, the units are not considered "dry rotary dryers" per 40 CFR Subpart DDDD definitions, due to the inlet moisture content of the wood of approximately 50%. Although the (2) proposed strand dryers will be new units, the "affected source" is not a new affected source, but considered an "existing affected source" per 40 CFR Subpart DDDD definition. An affected source includes green end operations, forming, and pressing. The costs of the (2) proposed dryers will not exceed 50% of the total affected source cost, and thus reconstruction is not triggered.

The facility developed HAP emission factors from test data at similar process units in Trus Joist and Weyerhaeuser facilities and data reported in the literature for the combined emissions from the proposed (2) new strand dryers and the existing (3) oil heaters.

The wood-fired oil heaters directly supply heat to the (2) new proposed strand dryers under normal conditions. All plywood and composite wood products limits in 40 CFR 63 Subpart DDDD are included under Emission Unit 02, Two Strand Dryers. All testing for the (2) new proposed strand dryers shall be performed under normal operating conditions with 100% of emissions from Emission Unit 01 going through the (2) new proposed strand dryers. Based on test data from similar processes at other Trus Joist and Weyerhaeuser facilities, the highest emissions will occur when Emission Unit 01 and 02 are in operation. There are no requirements for testing from Emission Unit 02, when Emission Unit 01 is down.

For demonstrating compliance with 40 CFR 63 Subpart DDDD emission limits, the emissions from the (3) Wellons wood-fired oil heaters can be subtracted from the emissions from the combined wood-fired oil heater/strand dryer exhaust, under normal operating conditions.

E. Unit 03 Siempelkamp Steam Injection Press
E. Unit 05 Saw System #1
E. Unit 06 Finish Saw System #2
E. Unit 07 Steineman Billet Sander
E. Unit 08 Two Stranding Operations
E. Unit 10 Siempelkamp Forming
E. Unit 11 Wood Dust Pneumatic Conveying

There are no proposed changes to Emission Units 03, 05, 06, 07, 08, 10, and 11, in the proposed modification. Hourly and annual particulate matter emission limits have been set to preclude PSD. The maximum usage and production rate of materials shall not exceed the rates described under the description for each emission unit in permit V-03-008 R2.

E. Unit 09 Stranding Area Woodhog
E. Unit 15 Green Woodhog
E. Unit 16 Log Preparaion
E. Unit 17 Green Fuel Storage Bins
E. Unit 18 Dry Fuel Storage Bin
E. Unit 19 Wood Chipper
E. Unit 20 Wood Tub Grinder
E. Unit 25 Unpaved Roadway

There are no proposed physical changes to Emission Units 09, 15 – 20, and 25. All emissions from the units are fugitive emissions. Any increases in emissions from the proposed modification to the units will not affect emission totals, pursuant to a PSD applicability determination.

E. Unit 21 Flange Preparation and Finger Joint Line
E. Unit 22 Web Preparation, TSI Machining, Spray Booth, I-line Oven, and (MP02) Fungicide Usage
E. Unit 23 High Pressure Relay
E. Unit 24 Propane Heating

There are no proposed physical changes to Emission Units 21 – 24. Any increases in emissions from the proposed modification to the units will be monitored and totaled, pursuant to Section D requirements in permit V-03-008 R2.

Emission Units 26 – 28

Emission units or activities that have a potential to emit less than or equal to one-half (1/2) tons per year of combined hazardous air pollutants; or less than or equal to five (5) tons per year of a non-hazardous regulated air pollutant. The permittee must use non-HAP coatings as defined in 40 CFR 63.2292.

Section D – Source Emission Limitations and Testing Requirements

As a self imposed restriction to preclude the applicability of 401 KAR 51:017, emission of carbon monoxide (CO), particulate matter (PM), particulate matter less than 10 microns (PM_{10}), and nitrogen oxides (NO_x) emissions from all non-fugitive sources shall not exceed 225 tons each, during any consecutive twelve (12) month rolling total. To demonstrate compliance, the permittee shall maintain records of the monthly CO, PM, PM_{10} , and NOx emissions from all non-fugitive sources, and summarize them on a 12-month rolling average.

Pursuant to 401 KAR 63:021, source-wide emissions of methylene biphenyl isocyanate (MDI) shall not exceed 1.45 lb/hr. To demonstrate compliance, emissions of MDI will be controlled by the particulate matter controls as stated for each emission unit in Section B. Controls shall be operated as necessary to maintain compliance with the permitted emission limitation, in accordance with the manufacturer's specifications and/or good engineering practices.

APPLICABLE REGULATIONS:

Regulation 401 KAR 59:010, new process operation, applies to emission units 02 through 13, and 21 through 24.

Regulation 401 KAR 59:015, new indirect heat exchanger, applies to emission units 01 (MP01 and MP02).

Regulation 401 KAR 63:010, fugitive emissions, applies to emission units 15 –20 & 25.

Regulation 401 KAR 63:021, Existing sources emitting toxic air pollutants, applies to emission units21-24.

(When published) 40 CFR 63 Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Industrial/Commercial/Institutional Boilers and Process Heaters, applies to emission unit 01.

(When published) 40 CFR 63 Subpart DDDD, National Emission Standards for Hazardous Air Pollutants: Plywood and Composite Wood Products, applies to emission unit 01 and 02.

Other Regulation applicable to Emissions Unit 01 (MP01), due to applicability date and/or size of unit:

Regulation 401 KAR 60:005, Standards of performance for small industrial-commercial-institutional steam generating units, incorporating by reference 40 CFR Part 60, Subpart Dc, applicable to an emissions unit with a design capacity of 100 mmBtu/hr or less and greater than or equal to 10 mmBtu/hr and constructed after June 9, 1989.

Please refer to the permit for details

COMMENTS:
Regulation 401 KAR 59:010 applies to emission units 02 through 13, and 21 through 24. Additionally, Regulation 401 KAR 63:021 applies to emission units 21 to 24.

EMISSION AND OPERATING CAPS DESCRIPTION:
Emission of CO, PM, PM_{10}, and NO_x shall not exceed 225 tons during any consecutive twelve (12) month rolling total.

PERIODIC MONITORING:
Not Applicable

OPERATIONAL FLEXIBILITY:

Not Applicable

CREDIBLE EVIDENCE:

This permit contains provisions, which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.